SEQUENCE LISTING

<110> Kawaoka, Yoshihiro	
<120> VIRUSES COMPRISING MUTANT ION CHANNEL PROTEIN	
<130> 800.026US1	
<150> US 60/197,209	
<151> 2000-04-14	
<160> 35	
<170> FastSEQ for Windows Version 4.0	
<210> 1	
<211> 19	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> A primer	
<400> 1	
aagagggtca cttgaatcg	19
<210> 2	
<211> 18	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> A primer	
<400> 2	
actgttgctg cgagtatc	18
<210> 3	
<211> 18	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> A primer	
<400> 3	
gttgttgctc caactatc	18
<210> 4	
<211> 18	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> A primer	
<400> 4	
gttgttgctg cgaacatc	18

rang girag giriga may ki ki girig girag giran girag ki ki ki ka may girag girag ali tandi ali tanti mati ti tindi ali wati ti tindi ali tandi il anta tina bini salic

<210> 5	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
•	
<220>	
<223> A primer	
-	
<400> 5	
gttgttatca ttgggatctt gc	22
	22
<210> 6	
<211> 18	
<212> DNA	
<213> Artificial Sequence	
<u> </u>	
<220>	
<223> A primer	
<400> 6	
cccaatgata ctcgcagc	18
	10
<210> 7	
<211> 25	
<212> DNA	
<213> Artificial Sequence	
2137 Artificial Sequence	
<pre> <210> 7</pre>	
<pre><223> A primer</pre>	
<400> 7	
<pre><400> 7 atcttgcact tgatattggc aattc</pre>	25
	25
======================================	
· <211> 62	
<212> DNA	
<pre><213> Artificial Sequence</pre>	
<220>	
<223> A primer	
<400> 8	
caccagtgaa ctggcgacag ttgagtagat cgccagaatg tcacttgaat cgttgcatct	C 0
gc	60
	62
<210> 9	
<211> 57	
<212> DNA	
<213> Artificial Sequence	
varas Arcificial Sequence	
<220>	
<223> A primer	
Caron II primer	
<400> 9	
cttttggtct ccctgggggc aatcagtttc tggatggatc gtcttttttt caaatgc	E 77
gave coocagagage aucougeece eggacggace geoeceeee caaatge	57
<210> 10	
2711 69	

```
<212> DNA
     <213> Artificial Sequence
     <220>
     <223> A primer
     <400> 10
     gcttagtatc aattgtattc catttatgat tgatatccaa atgctgtcac ttgaatcgtt
                                                                                   60
     gcatctgc
                                                                                   68
     <210> 11
     <211> 63
     <212> DNA
     <213> Artificial Sequence
     <220>
     <223> A primer
     <400> 11
    attataggag tcgtaatgtg tatctcaggg attaccataa tagatcgtct tttttcaaa
                                                                                  60
                                                                                  63
    <210> 12
    <211> 33
    <212> DNA
mind Const Good is if it is
    <213> Artificial Sequence
    <220>
    <223> A sequence from the pHH21 vector
Œ
    gggttattgg agacggtacc gtctcctccc ccc
                                                                                  33
irus
Kari
<210> 13
ų, ig
    <211> 18
Street.
    <212> DNA
    <213> Artificial Sequence
    <220>
    <223> The end of a PCR product
    <221> misc feature
    <222> (1) ... (18)
    <223> n = A, T, C or G
    <400> 13
    cgtctcntat tagtagaa
                                                                                  18
    <210> 14
    <211> 16
    <212> DNA
    <213> Artificial Sequence
    <220>
    <223> The end of a PCR product
    <221> misc_feature
    <222> (1)...(16)
```

, , , ,

	<223> n = A, T, C or G	
	<400> 14	
	ttttgctccc ngagac	16
	<210> 15	
	<211> 11	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> The end of a PCR product following digestion with BsmBI	
	<400> 15	
	tattagtaga a	11
	<210> 16	
	<211> 10	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
Guin Andi Kuik Kuik	<223> The end of a PCR product following digestion with	
	BsmBI	
Ghan Ghan	<400> 16	
### ##################################	gggagcaaaa	10
des and	<210> 17	
Herman Ch.	<211> 15	
# · i	<212> DNA	
H. Santa	<213> Artificial Sequence	
= :=	<220>	
i di	<223> A sequence from the pHH21 vector including	
Gud Gud	influenzal viral cDNA that was cloned into the	
4.3	vector	
ndla.	<400> 17	
	gggttattag tagaa	15
	<210> 18	
	<211> 13	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> A sequence from the pHH21 vector including	
	influenzal viral cDNA that was cloned into the vector	
	<400> 18	
	ttttgctccc ccc	13
	<210> 19	
	<211> 80	
	<212> DNA	

	<213> Artificial Sequence	
	<220> <223> A primer	
	<400> 19 cacacacgtc tcgtattagt agaaacaagg tcgtttttaa actattcgac actaattgat ggccatccga attcttttgg	60 80
	<210> 20 <211> 67 <212> DNA	
	<213> Artificial Sequence	
	<220> <223> A primer	
	<400> 20 cacacacgtc tccgggagcg aaagcaggtc aattatattc aatatggaaa gaataaaaga actaagg	60 67
gain finit diest Grest	<210> 21 <211> 89 <212> DNA <213> Artificial Sequence	
Mrn. Mrs. Stuff II of the	<220> <223> A primer	
The Court His group of the Court of the Cour	<400> 21 cacacacgtc tcgtattagt agaaacaagg cattttttca tgaaggacaa gctaaattca ctatttttgc cgtctgagct cttcaatgg	60 89
Hand Come He H H	<210> 22 <211> 67 <212> DNA <213> Artificial Sequence	
ullu .	<220> <223> A primer	
	<400> 22 cacacacgtc tccgggagcg aaagcaggca aaccatttga atggatgtca atccgacttt acttttc	60 67
	<210> 23 <211> 103 <212> DNA <213> Artificial Sequence	
	<220> <223> A primer	
	<400> 23 ccaacccgtc tcctattagt agaaacaagg tacttttttg gacagtatgg atagcaaata gtagcattgc cacaactatc tcaatgcatg tgtgaggaag gag	60 103
	<210> 24	

• • ,

	<211> 0/	
	<212> DNA	
	<213> Artificial Sequence	
	.000	
	<220>	
	<223> A primer	
	.400. 04	
	<400> 24	C 0
	ccaacccgtc tccgggagcg aaagcaggta ctgattcaaa atggaagatt ttgtgcgaca	60
	atgcttc	67
	<210> 25	
	<211> 40	
	<211> 40 <212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> A primer	
	(223) A primer	
	<400> 25	
	cacacacgtc tcctattagt agaaacaagg gtgtttttcc	40
# 1%	ououcuogeo coccucage agaaacaagg gegeeeeee	
gog, grop, gog, cog, g	<210> 26	
4.4	<211> 45	
IJ	<212> DNA	
a dig	<213> Artificial Sequence	
= :=	value in the contract of the c	
4	<220>	
initi Thurst	<223> A primer	
and the same	•	
#	<400> 26	
ilmii ilmii	cacacacgtc tccgggagca aaagcagggg aaaataaaaa caacc	45
122		
# :## # :##	<210> 27	
# : # : # : # :	<211> 47	
	<212> DNA	
other them that talk	<213> Artificial Sequence	
i i	allo illolloldi boquoloo	
	<220>	
	<223> A primer	
	-	
	<400> 27	
	cacacacgtc tcctattagt agaaacaagg gtatttttct ttaattg	47
	<210> 28	
	<211> 42	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> A primer	
	<400> 28	
	cacacacgtc tccgggagca aaagcagggt agataatcac tc	42
	оисисисуть госуууауса аааусауууг ауагаагсас го	+4
	<210> 29	
	<211> 46	
	<211> 40 <212 \ DMA	

c is

```
<213> Artificial Sequence
    <220>
    <223> A primer
    <400> 29
    cacacacgtc tcctattagt agaaacaagg agttttttga acaaac
                                                                                46
    <210> 30
    <211> 48
    <212> DNA
    <213> Artificial Sequence
    <220>
    <223> A primer
    <400> 30
    cacacagtc tccgggagcg aaagcaggag tttaaatgaa tccaaacc
                                                                                48
    <210> 31
    <211> 47
    <212> DNA
    <213> Artificial Sequence
And the
    <220>
    <223> A primer
182
    <400> 31
ing ing
    cacacagtc tcctattagt agaaacaagg tagttttta ctccagc
                                                                                47
Jane 1
    <210> 32
    <211> 41
ami
Kanii
    <212> DNA
    <213> Artificial Sequence
# .
    <220>
    <223> A primer
    <400> 32
    cacacacgtc tccgggagca aaagcaggta gatattgaaa g
                                                                                41
    <210> 33
    <211> 53
    <212> DNA
    <213> Artificial Sequence
    <220>
    <223> A primer
    <400> 33
    cacacacgtc tcctattagt agaaacaagg gtgttttta ttattaaata agc
                                                                                53
    <210> 34
    <211> 46
    <212> DNA
    <213> Artificial Sequence
    <220>
```

. .

```
<223> A primer

<400> 34
cacacacgtc tccgggagca aaagcagggt gacaaagaca taatgg 46

<210> 35
<211> 19
<212> PRT
<213> Influenza A virus

<400> 35
Pro Leu Val Val Ala Ala Ser Ile Ile Gly Ile Leu His Leu Ile Leu

1 5 10 15
Trp Ile Leu
```

· ·

the der first first und the first form

n nous m

uther these thank with